

WHAT IS CLAIMED IS:

1. A process for producing an embossed polyolefin film comprising:

- 5 (a) providing a cast polyolefin film or an oriented polyolefin film, wherein the film comprises,
- (i) a core layer comprising a propylene polymer,
- (ii) an embossable outer layer on a side of said core layer, said embossable outer layer comprising an olefin polymer and having an outward surface on a side of the embossable outer layer opposite a core layer side of the embossable outer layer, and
- 10 (iii) an additional outer layer on a side of said core layer opposite to said embossable outer layer, said additional outer layer comprising an olefin polymer and having an another outward surface on a side of the additional outer layer opposite a core layer side of the additional outer layer; and
- 15 (b) embossing at least the embossable outer layer of the cast or oriented polyolefin film, creating an embossed surface on the outward surface of the cast or oriented polyolefin film.

20 2. The process according to Claim 1, further comprising: treating at least one of the embossed surface and the another outward surface of the cast or oriented film with at least one of corona and flame discharge treating.

25 3. The process according to Claim 1, further comprising: metallizing the embossed surface of the cast or oriented film.

4. The process according to Claim 1, further comprising: heating the outward surface of the embossable outer layer of the cast or oriented film prior to embossing to soften the embossable outer layer.

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5. The process according to Claim 1, further comprising:
hard embossing the cast or oriented film to simultaneously emboss
each of the embossable outer layer, the core layer, and the additional
outer layer, creating an embossed surface on the outward surface of the
5 embossable outer layer and another embossed surface on the another
outward surface of the additional outer layer.

6. The process according to Claim 1, wherein embossing at
least the embossable outer layer comprises applying a coating to the
10 outward surface of the embossable outer layer in a pattern, creating an
embossed surface on the outward surface of the cast or oriented polyolefin
film.

7. The process according to Claim 1, wherein embossing at
15 least the embossable outer layer comprises embossing the oriented
polyolefin film after the film exits an orienter and before the film is treated
with at least one of corona and flame discharge treating.

8. The process according to Claim 7, wherein embossing at
20 least the embossable outer layer includes contacting the film with a
preheat roll and an embossing roll.

9. The process according to Claim 1, further comprising:
selecting the olefin polymer of the embossed outer layer from the
25 group consisting of an ethylene-propylene-butylene (EPB) terpolymer and
an ethylene-propylene (EP) copolymer.

10. The process according to Claim 1, further comprising:
providing a high density polyethylene (HDPE) for the olefin polymer
30 of the additional outer layer.

11. The process according to Claim 1, further comprising:
selecting a core layer consisting of an isotactic propylene copolymer
and at least one additive selected from the group consisting of antistatic
agents, antiblocking agents, lubricants, stabilizers, and hydrocarbon
5 resins;

12. The process according to Claim 1, wherein embossing at
least the embossable outer layer comprises embossing the cast polyolefin
film prior to treating the film with at least one of corona and flame
10 discharge treating.

13. The process according to Claim 12, wherein embossing at
least the embossable outer layer includes contacting the film with a
preheat roll and an embossing roll.

14. A process for producing an embossed polyolefin film
comprising:

- (a) providing a cast polyolefin film or an oriented polyolefin film,
wherein the film comprises,
- 20 (i) a core layer comprising a propylene polymer,
(ii) an embossable outer layer on one side of said core layer,
said embossable outer layer comprising an olefin polymer and
having an outward surface on a side of the embossable outer layer
opposite a core layer side of the embossable outer layer, and
- 25 (III) an additional outer layer on a side of said core layer
opposite to said embossable outer layer, said additional outer layer
comprising an olefin polymer and having an another outward
surface on a side of the additional outer layer opposite a core layer
side of the additional outer layer;
- 30 (b) heating the embossable outer layer of the cast or oriented film;

(c) embossing at least the embossable outer layer of the cast or oriented polyolefin film, forming an embossed surface on the outward surface of the cast or oriented polyolefin film;

5 (d) treating at least one of the embossed surface and the another outward surface of the cast or oriented film with at least one of corona or flame discharge treating; and

(e) slitting the treated film with a slitter machine.

10 15. The process according to Claim 14, further comprising:
metallizing the embossed surface of the film.

16. The process according to Claim 14, wherein slitting the treated film further comprises:

15 unwinding a master roll of oriented or cast polyolefin film;
cutting the film unwound from the master roll, into at least one narrower roll of film ; and
rewinding each of the at least one narrower roll of film into a rewound narrower roll of film.

20 17. The process according to Claim 16, further comprising:
contacting the embossable outer layer of the film unwound from the master roll with at least one heated roll prior to rewinding each of the at least one narrower roll of film, to heat the film; and
25 contacting the outward surface of the embossable outer layer of the heated film unwound from the master roll with an embossing roll.

18. The process according to Claim 17, wherein the film is corona or flame treated on the slitter machine, before rewinding each of the at least one narrower roll of film into a rewound narrower roll of film.

19. The process according to Claim 14, further comprising:
selecting the olefin polymer of the embossed outer layer from the
group consisting of an ethylene-propylene-butylene (EPB) terpolymer and
an ethylene-propylene (EP) copolymer.

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20. The process according to Claim 14, further comprising:
providing a high density polyethylene (HDPE) for the olefin polymer
of the additional outer layer.

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21. The process according to Claim 14, further comprising:
providing a core layer consisting of an isotactic propylene
copolymer and at least one additive selected from the group consisting of
antistatic agents, antiblocking agents, lubricants, stabilizers, and
hydrocarbon resins.

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22. The process according to Claim 14, further comprising:
heating the embossable outer layer to a temperature of between
about 230°F and about 280°F; and
soft embossing the film by applying an embossing force of about
200 psi to the heated embossable outer layer.

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